



Improving Health Literacy Knowledge Using AI-Assisted Technologies among University Lecturers

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Abstract

University lecturers play a pivotal role in shaping the academic landscape, contributing significantly to research output and academic libraries' repositories. Their health literacy is crucial not only for personal well-being but also for sustaining scholarly productivity. The advent of AI technologies in healthcare introduces new avenues for improving health literacy among university lecturers. Wearable devices, virtual assistants, predictive analytics and AI-assisted diagnosis tools offer personalized health insights, empowering lecturers to make informed decisions about their well-being. This explorative qualitative study, conducted at a public university in Ghana, investigated the utilisation of AI-assisted technologies among lecturers to improve their health literacy knowledge. Using purposive and snowball sampling procedures, semi-structured interviews were conducted for twenty experienced lecturers below the age of 50 years, with over 5 years of teaching experience, who use AI-assisted technologies for health monitoring. The findings revealed that AI-assisted technologies have the potential to positively influence lecturers' health behaviours, promote proactive steps towards healthier lifestyles and improve well-being; AI-assisted technologies give users early signals to health complications; health information provided by these technologies should be confirmed with a medical practitioner. The study further revealed concerns of lecturers regarding privacy, potential health risks and psychological consequences associated with constant self-monitoring using AI-assisted technologies. The study concludes that AI-assisted technologies have the potential of enhancing health literacy among university lecturers.

Keywords: Health Literacy, AI-Assisted Technologies, University Lecturers, Healthcare Monitoring, Wearable Devices

Introduction

University lecturers are major stakeholders of academic institutions as they contribute immensely to the research output hosted by academic libraries. Their health literacy is of great importance to academic libraries; in that attaining good health will empower them to publish more scientific research to populate the institutional repositories of universities for global visibility.

Health literacy is defined as, "the ability of individuals to gain access to, understand and use information in ways which promote and maintain good health for themselves, their families and their communities" (WHO, 2021). In addition, health literacy is a set of abilities required of a person to be health-conscious in everyday living. It comprises the capability of individuals including lecturers to access, comprehend and apply information to guide health-

related decisions and actions for themselves and others. In the absence of health literacy, there will be the potency of increased rates of Emergency Room visits (ER), and hospital admissions (Benyon, 2014).

Artificial Intelligence (AI)- assisted technologies support health care delivery from diagnosis to treatment, to disease prevention and potentiate doctor-patient relationships. For example, the wearable application with AI technologies can manage and monitor the health status of users (Vijayan et al., 2021). The health data from these sources are easy to share with healthcare providers for timely interventions in case of ill health.

AI-assisted technologies can be used to empower, monitor, receive, process and understand fundamental health information and services required to make good health decisions (Al Kuwaiti, 2023). For university lecturers to be health conscious, there is the need for them to take advantage of AI-assisted healthcare technologies that have proven to be game changers in healthcare delivery (Aggarwal et al., 2023; Bajwa et al., 2021; Abràmoff et al., 2018). This has become imperative as most lecturers go about their duties with no knowledge of their health status in terms of self-management and disease prevention. Studies have shown that AI-assisted technologies have the ability to help lecturers to be health conscious by providing them with tailored, accurate and easily available health-related information to lower healthcare ignorance (Uzir et al., 2023; Abràmoff et al., 2018). Available AI-assisted technologies used to promote health literacy include: wearable devices and sensors, medical image analysis, virtual assistants, predictive analytics, chatbots, AI-assisted diagnosis and treatment apparatus (Al Kuwaiti, 2023; Božić, 2023). These AI technologies largely offer health advice and suggestions based on medical history, genetic makeup and lifestyle characteristics at short intervals. For instance, AI-powered systems can examine a lecturer's wearable device data, social health data and electronic health records to offer individualised guidance on managing chronic diseases, preventing disease and improving general health and well-being.

Additionally, Amazon Alexa, a novel generative AI model, provides comprehensive virtual assistance across various domains, including health-related inquiries. It enables users to locate urgent care facilities, exchange medical information, schedule appointments, receive updates, manage prescriptions and access personalized medical data (University of Southern California, 2024). Despite the widespread

integration of AI into healthcare, the utilisation of such technology to enhance lecturers' health literacy remains relatively understudied. Therefore, the objective of this research is to address this gap by examining the potential concerns associated with this phenomenon. Specifically, the study investigates the utilization of AI-assisted technologies such as wearables, mobile applications and computer software to monitor lecturers' health status.

Problem Statement

Due to the intense physical and psychological strain of lecturers' jobs, they sometimes pay less attention to their health conditions, even if they have to see a medical officer. Typically, the activities of a university lecturer include the delivery of lectures, seminars, tutorials, academic programme designing, developing teaching materials, implementing new teaching methods, marking students' scripts, setting and moderating examination questions, supervising students' research projects and many more.

Apart from the above-mentioned responsibilities, there is also the 'publish or perish' syndrome that haunts many lecturers (Owan & Asuquo, 2022). This phrase represents the view that for university lecturers to be promoted to their next rank, they must publish a certain number of scientific research papers. Owan and Asuquo (2022) added that lecturers with no track record of scientific research publications are seen as lazy and not fit to be promoted. Besides, some universities even specify where lecturers should publish for instance, in top-class databases, such as Scopus or Web of Science, within a specified timeframe. Meeting these obligations and other responsibilities, pose a big challenge to the health of lecturers. In order to focus on their profession, some lecturers forego or overlook making critical health decisions such as having enough sleep, exercise, healthy eating, resting and frequent medical checks. Meanwhile, earlier studies have shown that there is an increase in global deaths annually among lecturers which are associated with avoidable diseases (Agunanne et al., 2022; Ekwunife & Aguwa, 2011). Furthermore, despite the acceleration of AI technology adoption prompted by the COVID-19 Pandemic across various sectors, including healthcare, the understanding of AI's capacity to enhance lecturers' health literacy remains limited.

Research Questions

The following questions guided the study:

1. Why do lecturers use AI-assisted technologies?

2. How often do lecturers use AI-assisted technologies?
3. How effective are these technologies?
4. How does the use of these technologies change health behaviour?
5. How long have lecturers used these AI-assisted technologies?
6. Do lecturers who are more focused on their health tend to use AI-assisted technologies?

Objective

This research aimed to examine the health literacy knowledge of lecturers in Ghana, focusing on their experiences and viewpoints regarding the use of AI-assisted technologies.

Literature Review

Health Literacy

In the past, the capacity to manage numerical data within a medical context was deemed the fundamental benchmark of health literacy. However, in recent years, this definition has expanded to incorporate the concurrent use of a more sophisticated and integrated set of abilities. These include the ability to read, communicate and use health information effectively. Health literacy encompasses an individual's ability to understand the context of the well-being of themselves, their family and the community. Consequently, a person who possesses a sufficient level of health literacy can assume accountability for their well-being, as well as the well-being of their families and the community. According to Malik et al. (2017), a person can be health literate if they can make decisions for living a healthy lifestyle, understand complex terminology and share personal information with healthcare providers with ease. Such individuals should be able to actively participate in managing chronic diseases and navigate complex healthcare system. In addition, the Healthy People (2030) initiative posits that health literacy applies to the knowledge and resources that individuals require to make well-informed choices about their health.

The Significance of Health Literacy

Health literacy plays a vital role in shaping a lecturers' healthcare outcomes. For example, a lecturer with a strong grasp of health literacy will have the requisite abilities to understand and assess health information as well as treatment options. This enables them to participate in shared decision-making with healthcare professionals, thereby empowering them

to make informed choices regarding their healthcare (Božić, 2024, Liu et al., 2020). A high level of health literacy will make it easier for a lecturer to adhere to prescribed prescriptions, comply with suggested lifestyle modifications and attend planned medical appointments as a means of controlling chronic ailments (Božić, 2024, Nutbeam, 2023). This will help avoid the occurrence of diseases and enhance general well-being as the individual takes preventive measures regarding his/her health.

AI Technologies Application in Health Literacy

Artificial Intelligence (AI) is a revolutionary technology system that replicates human intelligence by creating algorithms and computational models. AI has become a revolutionary force in different industries, and one of its most potential and influential uses is in healthcare. AI in healthcare involves the use of sophisticated computational methods to analyse intricate medical data, extract significant findings and aid healthcare professionals in making decisions regarding patients' health conditions (Božić, 2024). People with low health literacy encounter difficulties in comprehending, deciphering, and implementing health-related information, which can result in negative outcomes throughout the healthcare domain. The National Library of Medicine (2022) reported that 90% of adults, including lecturers, struggle with health-related information, with lecturers/teachers having the lowest level of health literacy. Adam and Kaveh (2020) stated that AI technologies are superior to humans in undertaking tasks like medical image analysis, correlated EMRs, illness diagnosis and prognosis and their use by lecturers will awaken their health consciousness. Junaid et al. (2022) stated that AI systems are not yet capable of reasoning in the same way as doctors, who can rely on "clinical intuition and experience" or "common sense" but rather they work like signal translators, extracting patterns from datasets. Information from these data sets is used by AI technologies to generate patient-centric records, which are shared with the appropriate patients.

Importance of using AI Technologies to Improve Health Literacy

Dunn & Hazzard (2019) highlighted emerging technologies that can improve health literacy, including AI, machine learning, voice-first technology, wearables, remote patient monitoring, apps and websites. AI can analyze patient data to predict and prevent diseases; while voice-first technology, like Google Assistants,

can help patients manage their health issues. Wearables collect data on heart rate, sleep patterns and physical activity, while remote patient monitoring (RPM) allows healthcare professionals to monitor patients remotely, thus, improving patient outcomes and reducing hospital stays. Apps and websites provide access to health resources and information for patients. Junaid et al. (2022) discussed the concept of connected and augmented care to improve health literacy; it aims to connect hospitals, medical facilities, patients and social care services to a single digital infrastructure with AI chatbots, ambient and intelligent care, wearable technology, remote patient monitoring (RPM) and health resources through apps and websites. AI chatbots use natural language understanding to identify symptoms and suggest next steps, while wearable technology collects and interprets data to provide insights into patients' health. RPM can enhance patient outcomes and reduce hospital stays. Wearable technology, sensors and telehealth devices can also be used for remote monitoring. Low health literacy can hinder the effective use of online health data for risk prevention and health promotion, as individuals may struggle to evaluate its validity (Pisl et al., 2021). Lecturers who possess high health literacy are able to engage in more effective communication with their healthcare practitioners. Hence, the use of AI technologies will give them the ability to clearly communicate their symptoms, voice their concerns and pose inquiries, thus promoting a cooperative and transparent relationship with their healthcare providers (Božić, 2024, Nutbeam, 2023). However, Uzir et al. (2023) indicated that "perceived ease of use, perceived usefulness, perceived credibility and perceived self-efficacy" influence people's interest in purchasing and using wearables for healthcare services.

The literature reviewed highlights the importance of health literacy and the potential of AI technologies in aiding university lecturers in improving their health literacy skills. By providing personalized learning experiences, real-time feedback and easily accessible health information will foster a healthier and more productive teaching force in universities in Ghana.

Methodology

Study Design

To gain a thorough understanding of the phenomena being investigated, the researchers used exploratory qualitative research technique. Exploratory qualitative research is beneficial in determining the complete nature of a little-understood phenomenon

(Polit & Beck, 2012). This research approach is excellent for examining the health literacy of lecturers in Ghana.

Population

This study used lecturers of a certain university in Ghana. The name of the university remains anonymous because the study was based on the Declaration of Helsinki Ethical principles [seventh revision in 2013] (Dik & Doenges, 2019) that declared the protection of privacy and the preservation of the confidentiality of personal information pertaining to study subjects related to health. The study, however, concentrated on a specific group of lecturers who meet three criteria: (1) having taught for more than five years, (2) being under the age of 50 years, and (3) use AI-assisted technologies for health. The study focused on lecturers because they are key contributors to the research output of the university which are hosted in the institutional repositories in academic libraries. Also, they are among the category of workers with high job stress level which is detrimental to their health. The study of Brenyah et al. (2023) indicated that 57.18% Ghanaian lecturers had high BP and 80% of them had never checked their blood sugar level since they took on the role of lecturers.

Sample and sampling procedure

The non-probability sampling method (purposive) was employed to conduct the study. Also, using the snowballing technique, the set criteria narrowed down the focus of the research to a subset of twenty (20) experienced lecturers within the context of a public university in Ghana who were under the age of 50 years, had more than 5 years teaching experience and use AI-assisted technologies for health related activities. Morse (2015) asserts that saturation in the qualitative data is reached after conducting 12 interviews and broader themes emerge after 6 interviews.

Data Collection

Employing semi-structured interviews, the researchers gathered qualitative data themselves from lecturers using audio recording and note-taking procedures. Note-taking allowed the researchers to capture key points, observations and insights in real time during the interview process. Data was collected within a period of two weeks (14th to 29th February 2024). The researchers' first successful interview with a lecturer who uses AI-assisted technology to monitor his/her health, led to the recruitment of other participants.

The participants were briefed about the purpose of the study and their consent were duly sought. Participants were assured of their confidentiality and anonymity. Most lecturers were interviewed on the spot in their offices, while appointments were booked with those who preferred to be interviewed later.

Data Analysis

The audio recorded interview data from the participants were transcribed using the Whisper software and exported to Microsoft Word. Thematic analysis of the transcribed data was done by reading and re-reading to identify themes focusing on recurring themes, categories and sub-categories. Conclusions and inferences were drawn from the data and reported.

Ethical Considerations

The research strictly followed the principles of voluntary participation as outlined in the Declaration of Helsinki ethical principles [seventh revision in 2013], of informed consent, confidentiality and data anonymization to ensure the protection of participants' rights and privacy throughout the study. All data collected were anonymized and handled confidentially, with participants fully informed about the nature and purpose of the research. Additionally, participation in the study was voluntary, and participants were free to withdraw at any stage without facing any repercussions. The study also ensured that the research procedures and data collection methods posed no harm or risk to participants.

Findings

Reasons for Using AI-Assisted Technologies

The study findings revealed that participants use different AI-assisted technologies such as heart rate monitors, BP monitors, step trackers, weight loss walking, pedometer, smart wrist watches, Alexa and reliant (breath test) for health reasons. A number of these apps are connected to smart phones.

Some Responses of Participants;

I use the heart tracker to monitor my heart rate and rhythm. It monitors the rate at which I walk and also check the calories I burn. It also, helps me to know how far I should go about my everyday life activities. (P 1). I use the watch as a kind of activity tracking to close my rings on the app; there is red ring for steps and a green ring for workouts and a blue ring for standing up every hour. It also measures heart rate, oxygen

level, and... kind of other things. (P 3). I use wearables and phone apps to monitor my health. (P 15). I actually use my wristwatch to monitor my walking within the day at least 10,000 steps a day is my target. Yeah. That's the only one I use for now, which is actually connected to my phone. It also does other things like checking the heart rate, the oxygen saturation (SpO2) in my body. I also check my sleep with it in the night, I want to make sure I am able to at least, if not hit the eight hours of sleep, get close to it. (P4)

The findings from the study show that most of the AI-assisted technologies used by participants are to monitor their health and to improve their health literacy. An interesting finding revealed that using AI technology requires time, reading and studying.

I bought a smart watch with the intention of using it to be checking my health. But unfortunately, I'm not using it as such. Yes. I needed to configure it to check my heartbeat, checking of my stress level and the number of steps I take in a day, all that needs to be configured. But the truth is, I've just not had time to configure all that or study the products (P 20)

Frequency of use of AI-Assisted Technologies

The study findings showed that participants make daily use of the AI-assisted technologies particularly to monitor their health. Participants have this to say:

I used the wearables for almost six years now (P 15). I use the app always.... It's something that I am conscious about because I have an underlying medical condition, diabetics and blood pressure. There are certain health activities that the app prompt me to do in order to stay on top of my health, for instance I walk 5 kilometers at least or 16.3 kilometers at most every day non-stop (P18).

Findings from the interviews reveal that the minimum number of years that participants have used these AI assistive technologies particularly, the ones for monitoring their health was two years and the maximum was 10 years. However, most participants had used these technologies for less than 5 years. Some participants commented that:

Using AI-assisted technologies has been my routine, it's part and parcel of me. The last time I went to hospital was 2015 before I started using

the app in 2017. I use the app to check how my body behaves, this has helped me to be in the “search range” all this while, my BP hasn’t gone up. It’s been like that, it’s been stabilized because I use the app to monitor myself to walk and drink a lot of water. This is important because as lecturers, we teach too much. I mean we spend so much time in the lecture hall. I’m an HOD, I’m supposed to take about 8 credit hours but I’m still taking 23 credit hours (P 19). I’ve been using the wristwatch to monitor my health for the past three years. For this particular watch, I can say it’s just the latter part of last year that I actually started using it. This was actually a gift from someone from China, and when I saw the features on it, I felt that it’s something which could help (P4).

Effectiveness of using AI Technologies to Monitor Health

The findings of the study showed the effectiveness participants attribute to the health monitoring AI technologies. This finding confirms Abràmoff et al. (2018) discovery that AI systems are effective in earlier detection of illness in patients which reduce their suffering and medical cost. However, majority commented that the health information provided by these technologies should be confirmed with a medical practitioner. Thus, AI-assisted technologies must be seen as tools while the health information provided by these AI-assisted technologies must be viewed as signals to alert one to seek medical attention.

Some participants commented:

Well, they are extremely effective because it helps me exercise a lot. Two years ago, I used to weigh 125 kg and then I decided to be intentional about my weight. Therefore, that is what guides me. For instance, it tells me when I need to walk; when I need to drink water because I have to drink about 5 to 10 bottles of this (pointing to a 500ml bottle of water) a day, which is about 5 litres a day. Every two hours it will tell me what I need to do. At least that is what I rely on. I even rely on the watch more than the phone (P 20). It has help me because of the kind of work I do, sitting work, which doesn’t really help my health. So, sometimes it prompts me to also know that I’ve sat for too long, I need to visit the washroom, and some other things that it tells me to do here. So, I have been using it for a long time to lose weight (P17). I think they

are effective; so occasionally I will look at my oxygen levels and heart rate. I probably look at it several times a week because it is interesting. I am particularly interested in the heart rate. I had a loved one who have been using the AI watch, one night his heart stopped like several times but because he didn’t pay attention to the heart rate data on the app, he did not realize his heart slowing down. When he checked the app later, the data gathered informed him about the trend of his heartbeat during the night. It was going really low in the night. Therefore, I kind of tell everybody, get one of these and have it monitored while you sleep because then you have some data that will inform you about your health status. I am thinking, these things are probably pretty useful. The information the AI produces is basic now, but we should be looking at them. (P3). It is effective in a way. Because of course, there will be some prompts. Maybe it is time to take a five-minute or so break. Many of my friends use it to monitor their calories. However, personally, I use it to keep fit (P15).

Another participant has this to say:

I think it is very effective because it helps me to stay conscious when it comes to the number of steps I have to take as well as measuring my heartbeat. I do not know if we know enough about the body to create measurement tools that will work. So, I take that with a grain of salt. But as far as prompting me to prepare to go to sleep, prompting me to aim for eight hours of sleep, prompting me that it’s time to get up, prompting me to take steps or stand up. I think that kind of stuff is effective because, especially in my line of work, if I just get so focused, I do need somebody to remind me to stand up and remind other things as well (P12).

On the other hand, some participants stated that AI technologies can give users early signals of sickness: *It’s very helpful because it can give you some early signals. To track certain sicknesses. It can serve as a quick or a fast signal or warning on some upcoming ill health. Therefore, using the wearable is a good thing (P9, P12).*

Two participants consider AI technologies effective in terms of sharing the data gathered with medical doctors for further examination to prevent

serious illness. They indicated this:

After moving with this app, am also in touch with my doctor I report to my doctor every now and then to discuss the health alerts the app gives me. So, it's like without this, I would have had prostrate problems. It has really helped me health-wise by reducing my salt intake (P19). If you supply the data to your doctor for your annual review or something, then it's quite effective because at least you have a professional who is using that data. However, if not then the AI tech becomes an aid. So, you are not supposed to depend on it entirely (P4).

One participant stated that effectiveness should be measured in terms of following the prompts of the AI technologies.

I would say that it is not effective for me, because sometimes I even ignore the prompt it gives me to even get up and walk around. I'm like, oh, when I finish... Uh-huh. So, I would say that its ineffectiveness is as a result of me not being strict on what it tells me to do (P2). Yes, so effectiveness has to do with a lot of discipline, conscious effort that you want to use the app. But I still supplement the app with the treadmill to make sure that at least I go a bit faster to lose weight (4).

Influence of AI Technologies on Health Behaviour of Lecturers

The findings also showed that most participants changed their health behaviour due to the use of the AI-assisted technologies. Participants indicated that from time to time, the AI smart watch tells them what to do, for instance, drink water or stand up if they have been sitting for a long time. Some participants also said that sometimes they don't respond immediately because they may be busy working but after the work, they do what the AI ask them to do.

Yes, the app helps me observe healthy activities to achieve longevity. If I call my age for you, you'll be surprised. It has enhanced my health. I think that's the best because it keeps me abreast with my health issues. Yeah. (P13). The phone itself will not change the behaviour. We have people using the phone and the watch but do not rely on the prompts etc. I mean I have been using iPhone since but I was not conscious of my health. Therefore, it is not actually the phone that is changing the behaviour, it has to be your

mindset, what you want to do, what you want to achieve. However, the phone becomes a helping tool to determine the distance I have covered and that will inform even the choice of food I have to take. It is not only the use of the phone but then it has to be a conscious effort on your part (P11).

Yeah. I know closing those rings on the app is quite beneficial. I always want to close those rings and sometimes I would like get on the exercise bike just to close the rings. I would say that's changed my behavior. I think one of my behaviors is telling people about it so that they will get a watch and monitor that stuff. I've paid attention to my other things about my heart. You just can't help it. And the heart rate variability, which I suppose is really important. So, I'd have to sort of if I see that my heart rate variability isn't very good, I'm like, oh, I need to do that breathing exercise they said would make it better. So yeah, I would say the gamification of it and the easy access to the data makes it attractive for using it for changing my behaviour (P3). I'm very conscious when it comes to the blood pressure, I always try to make sure that I'm within the required range. So, I try to live a healthier life to fall within the range. The prompt helps me to be focused and conscious when it comes to health issues (P12). There are times I try to climb up the stairs just to make sure that at least there has been some activity for the body to have. So, if it is not even up to the 10,000 steps, at least it should be something midway. Yeah and when I look at the figures on my phone say today and I've not done well. I need to do so. I think sometimes the promptings it gives me also give me the opportunity to may be just walk out to check on a colleague and then come back (P4).

On the contrary, this participant has this to say: *Well, for me, because I'm not using it for that purpose, I would not really say yes. But I know colleagues who have testified that at least it's something that checks your health status. I know that, what I have checks stress level and the amount of sleep you've had in the day and all that (P2).*

Most participants considered themselves to focus more on their health as far as the use of the health AI-assisted technologies are concerned. They further

commented that the reason for buying the smart watch was to monitor their health. A participant said:

Yeah, that's the reason why I use it. In 2015 a BP condition took me to the hospital and the doctor told me that I should watch my health, that is why I got this AI technology to monitor my health, that's the best, it very fast to let me know my health status. I also bought a device on Amazon for that (P 1). Probably time didn't permit me read and use the AI tech but I'm one person who takes care of my diet, whatever I take in. I'm very particular about it. And then also I exercise a lot. So at least every Saturday I try to walk. I try to walk, go around the stadium about seven times. And then I play long tennis. Every Saturday. And then if there is a holiday or something within the week, I utilize that as well (P 1). Because it's a day-to-day experience with the AI watch and because it's connected to my phone, I can monitor the weekly and the monthly status of my health. I sometimes decide to go on the treadmill to meet at least the 10,000. I sometimes check my weight and I realize that no, it is not something that I really like. The figures are high so I really need to step up my game. It helps me to also check the heart rate and with the SPO2 (4P).

Also, the participant added that:

So, it gives me some kind of assurance that at least if I am not getting one aspect, I am getting the other aspect. When I also realize that the heartbeat is high, then I try to check. I try to check the BP to see if it is normal or it is going up (P1). For me the AI is a channel but that is not the reason why I am doing it. The reason is the health aspect itself. So yes, I am health conscious, so I bought this watch close to 5,000 Ghana cedis just to monitor my health status (P20).

Concerns of Using AI Technologies to Monitor Health

The findings showed that some participants raised concerns such as being stressed just by the fact that the AI technologies indicate a negative health status.

When I'm walking, I take this and hold it in my hand, not on me, Yeah. Because I know very well that if you put two phones here and here, pointing to his two trousers pockets... you are burning yourself (P2). Some colleagues told me that they don't use AI technologies anymore

because just by checking and knowing that they are stressed or they have not had enough sleep alone stresses them. I guess that was one of the reasons I was not encouraged to configure my own (P1).

Discussion of Findings

AI-assisted technologies are improving the health literacy knowledge of lecturers providing real-time data and motivating them to achieve health goals. Lecturers use AI-assisted technologies like heart rate monitors, blood pressure monitors, step trackers, and weight loss devices to offer insights and motivation for lecturers to monitor their health frequently. The inclusion of smart wristwatches and devices like Alexa further expands the capabilities of AI in health monitoring and management in their lives. The connectivity of these devices to their smartphones enhances accessibility and convenience. With data synchronizing seamlessly between devices, lecturers easily monitor their progress, set goals and receive personalized recommendations for improving their health. These findings affirm assertions by Božić (2024) and Nutbeam (2023) that utilizing AI technologies empowers individuals to effectively articulate their symptoms, express their concerns and raise questions, thereby fostering a collaborative and transparent partnership with their healthcare providers. The integration of AI into health and wellness routines represents a significant advancement in empowering lecturers to take control of their health proactively. However, while the proliferation of AI-assisted health technologies offers numerous benefits to lecturers, it is essential to consider factors such as data privacy, accuracy of measurements and the potential for over-reliance on technology.

The effectiveness of using AI technologies to improve the health literacy knowledge of lecturers has shown promise in this study. The findings demonstrated that the AI technologies used by lecturers are valuable in providing insights into their health status, identifying potential issues, and promoting proactive healthcare management. This finding is consistent with the findings of Dunn and Hazzard (2019) who stated that emerging technologies can improve health literacy. It is crucial to acknowledge participants' comments regarding the need to verify the health information provided by these technologies with a medical practitioner. Thus, despite the advancements in AI, these technologies sometimes produce inaccurate or misleading results and there is therefore the need to seek medical expertise in

interpreting and contextualizing health data gathered from AI technologies. It is prudent to view AI-assisted health monitoring technologies as complementary tools rather than substitutes for professional medical advice. They can serve as early warning systems, alerting individuals to potential health concerns and prompting them to seek appropriate medical attention. This collaborative approach, where AI technologies provide signals or indicators that prompt human intervention, can enhance holistic healthcare delivery among lecturers. Having a high level of health literacy is significantly more advantageous than having low health literacy. Low health literacy can impede the effective utilization of online health information for risk prevention and health promotion since individuals might encounter difficulties in assessing its accuracy (Pisl et al., 2021).

The findings suggest a significant positive impact of AI-assisted technologies on health behavior of lecturers, with most participants reporting changes in their habits due to the guidance provided by the AI technologies they use. The participants in this study use AI-assisted technologies to improve their health literacy knowledge. This finding is contrary to the findings of a study by the National Library of Medicine (2022), which reported that 90% of adults, including lecturers, struggle with health-related information, with lecturers having the lowest level of health literacy. The contradictory findings may be due to the use of snowball sampling; the current study may have had a higher proportion of lecturers who are interested in and use AI-assisted technology. The use of AI smartwatches, in particular, seems to have influenced behaviour by offering timely reminders and suggestions. Most participants mentioned that the AI smartwatch prompted them to drink water or stand up after prolonged sitting, indicating a proactive approach towards health management. These reminders likely contribute to increased awareness and motivation to adopt healthier habits, such as staying hydrated and avoiding prolonged sedentary activities. It is interesting to note that while some participants may not immediately respond to the AI's prompts due to being busy with work or other tasks; they still make an effort to comply with the suggestions later on. This highlights the flexibility and adaptability of AI-assisted technologies in accommodating users' varying schedules and lifestyles.

These findings underscore the potential of AI in improving health literacy of lecturers while promoting positive health behaviour change by providing

personalized and timely interventions. By leveraging AI's capabilities to deliver tailored recommendations and reminders, lecturers are empowered to take proactive steps towards improving their well-being while facilitating their engagement in collaborative decision-making with healthcare professionals, empowering them to make well-informed choices about their healthcare (Božić, 2024; Liu et al., 2020).

However, certain participants expressed concerns about the utilization of AI technologies in relation to personal health and well-being. The apprehension about holding a phone while walking, instead of it being on the body, demonstrates a heightened awareness of potential health risks associated with prolonged exposure to electronic devices. This concern aligns with ongoing debates and studies about the potential effects of electromagnetic radiation emitted by smartphones and other wireless devices on human health. By choosing to hold the phone away from the body, the participant is actively attempting to mitigate perceived risks, highlighting the importance of informed decision-making when using technology.

In addition, a participant's discussion about experiencing increased stress by simply knowing their stress levels or lack of sleep through AI-powered monitoring tools sheds light on the potential psychological implications of constant self-monitoring. While these technologies aim to provide valuable insights into one's health status, they can also inadvertently contribute to increased anxiety or stress levels. The participant's reluctance to configure such tools for usage reflects a thoughtful consideration of the potential negative impacts on mental well-being.

These concerns emphasize the need for a balanced approach to the integration of AI technologies in healthcare and personal wellness. While these tools offer immense potential for improving health outcomes and promoting preventive care, it is essential to address and mitigate potential risks and drawbacks. This includes providing clear and accurate information about the potential health implications of using AI technologies, as well as offering guidance on how individuals can use these tools responsibly to enhance their overall well-being without compromising their physical or mental health.

Recommendations

In view of the findings of the study, the underlisted recommendations are made.

- Due to the positive health-related behaviour

changes reported by participants, lectures should be interested in improving their health using AI-assisted technologies.

- Lecturers should be mindful of sharing sensitive health data and ensure the security of their information when using AI-assisted devices and applications connected to the internet.

- Lecturers considering using AI-assisted technologies for improving their health should be aware of the time and effort necessary for configuration of devices, as well as the potential negative effect of stress.

- The use of AI-assisted technologies in monitoring health should be encouraged, however, lecturers should avoid over dependence on AI for health information.

- The use of Clinicalkeys and UpToDate® resources are recommended to lecturers.

Conclusion

The study concludes that AI-assisted technologies have the potential of promoting positive health behaviour change among lecturers. The findings demonstrated that leveraging AI technologies can empower lecturers to take proactive steps towards improving their well-being and achieving healthier lifestyles thereby improving their health literacy. However, some participants expressed reservations about the use of AI technologies in personal health, highlighting potential health concerns and the need for educated decisions. The study also concludes that there are psychological consequences of constant self-monitoring, highlighting the potential for increased worry or stress levels, and the unwillingness to engage with these technologies. Future research should investigate the long-term effectiveness and user experience of AI technologies in sustainable behaviour change and user satisfaction

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